



Santa Clara Fire Department

Installation of Above-Ground Diesel Fuel Tanks for Generators



PURPOSE

To facilitate the design, installation, and plan review of above-ground diesel fuel tanks (ASTs) for emergency and standby power systems (both legally required and optional) and to ensure that their installation complies with all applicable standards. All installations and modifications shall comply with the 2007 California Fire Code (CFC) and 2007 California Building Code (CBC).

SCOPE

The Santa Clara Fire Department (SCFD) has established the following requirements for the installation and modification of ASTs and associated equipment for both emergency and standby power systems. Plans not conforming to these minimum requirements will be returned for correction. These guidelines are applicable to the installation of above-ground tanks using combustible liquids as fuel for emergency and standby generators. These guidelines are a supplement to other requirements and/or guidelines, and are not all-inclusive. Each referenced code and standard must be reviewed in its entirety to insure compliance.

Applicable codes and standards:

- 2007 California Fire Code (CFC)
- 2007 California Building Code (CBC)
- 2007 California Electric Code (CEC)
- 2007 California Mechanical Code (CMC)
- 2005 National Fire Protection Association Standard 110 (NFPA 110), *Standard for Emergency and Standby Systems*
- 2003 National Fire Protection Association Standard 30 (NFPA 30), *Standard for Flammable and Combustible Liquids*
- 2002 National Fire Protection Association Standard 37 (NFPA 37), *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines*
- 1998 Underwriters Laboratories (UL) 2200, *Standby for Stationary Engine Generator Assemblies*
- 1997 Underwriters Laboratories (UL) 2085, *Protected Above-ground Tanks for Flammable and Combustible Liquids*
- 1993 Underwriters Laboratories (UL) 142, *Standard for Steel Above-ground Tanks for Flammable and Combustible Liquids*

Permits:

- A permit from SCFD is required to install a new tank or alter an existing tank containing flammable or combustible liquids.
- An installation permit is also required from City of Santa Clara Building Department to install an emergency or standby generator, fuel tank, piping, and associated equipment.
- Permits may also be required from the Bay Area Air Quality Management District.
- SCFD requires annual permit and fees to utilize above ground fuel tanks.

Definitions:

The following definitions apply with regard to requirements specified in this document:

Atmospheric Tank - A storage tank that has been designed to store liquids at a gauge pressure of 1.0 psig measured at the top of the tank (NFPA 30, 3.3.41.2, CFC 2702.1).

Day Fuel Tank - A fuel tank, located inside a structure, that provides fuel to the engine (NFPA 110, 3.3.6.1).

Emergency Power Supply System (EPSS) – A complete functioning system that supplies secondary power to all equipment required to have secondary power by all applicable codes. Components of the system could include all the related electrical and mechanical components, conductors, disconnecting means, over-current protection devices, transfer switches, and all control, supervisory, and support devices up to and including the load terminal of the transfer equipment needed for the system to operate as a safe and reliable source of electric power (NFPA 110, 3.3.5).

Emergency Systems - Emergency systems are those systems legally required and classed as emergency by municipal, state, federal, or other codes, or by any governmental agency having jurisdiction. These systems are intended to automatically supply illumination, power, or both, to designated areas and equipment in the event of failure of the normal supply or in the event of accident to elements of a system intended to supply, distribute, and control power and illumination essential for safety to human life (CEC 700.1).

Enclosed Fuel Tank - A fuel tank located within a separate room, separated from other equipment (NFPA 110, 3.3.6.2).

Integral Fuel Tank in EPSS Systems - A fuel tank furnished by the EPSS vendor and mounted on the engine or under as a sub-base (NFPA 110, 3.3.6.3).

Legally Required Standby Systems. Those systems required and so classed as legally required standby by municipal, state, federal, or other codes or by any governmental agency having jurisdiction. These systems are intended to automatically supply power to selected loads (other than those classed as emergency systems) in the event of failure of the normal source (CEC 701.2).

Level 1 Systems – Level 1 systems shall be installed when failure of the equipment to perform could result in loss of human life or serious injuries (NFPA 110, 4.4.1). It includes all loads classified as “Emergency Systems” as defined by the 2007 CFC, 2007 CBC, and 2007 CEC. Level 1 loads for emergency power systems shall include, but not be limited to, the following:

1. Emergency voice/alarm communication systems in Group A occupancies and high rise buildings (CFC 604.2.1),
2. Means of egress illumination and exit signs in all occupancies (CFC 604.2.3),
3. Means of egress illumination and exit signs in high-rise buildings. Exception: Group F & S occupancies are permitted to be powered by a legally required standby power system (CFC 604.2.15.3),
4. Semiconductor fabrication facilities (see CBC 415.8.10.1 for a detailed list),
5. Exit signs in temporary tents and membrane structures (CFC 604.2.9),
6. Occupancies with highly toxic, toxic, and moderately toxic materials for indoor storage/use and outdoor storage/use over the threshold quantities (CFC 3704.2.2.8 & Table 3704.2 SCMFEC).
7. Indoor storage, use and dispensing of silane gas over the MAQ (CFC 4106.2.3, 4106.4.3),
8. Mechanical ventilation, treatment systems, temperature control, alarm, detection or other electrically operated systems are required (for storage or use over the MAQ, i.e., any H occupancy) (CFC 2704.7 & 2705.1.5),
9. Elevator car lighting for high rise buildings (CBC 403.11.1),
10. Automatic fire detection system and fire alarm systems in high-rise buildings (CBC 403.11.1),
11. Electrically powered fire pumps required to maintain pressure in high-rise buildings (CFC 604.2.15.3 as amended by SFM).

NOTE: The installation of fire pumps shall be in accordance with the 2003 National Fire Protection Association Standard 20 (NFPA 20), *Standard for the Installation of Stationary Pumps for Fire Protection* and Article 695 of the 2007 California Electrical Code.

Level 2 Systems – Level 2 systems shall be installed when failure of the EPSS to perform is less critical to human life and safety and where the authority having jurisdiction shall permit a higher degree of flexibility than that provided by a Level 1 system. It includes all loads classified as “Legally Required Standby Systems” as defined by the CEC and/or “Standby Power Systems” as defined by the CFC and CBC. Level 2 standby power system shall include, but not be limited to, the following:

1. Elevators that are part of an accessible means of egress (CFC 604.2.5),
2. Platform lifts that are part of an accessible means of egress (CFC 604.2.6),
3. Horizontal sliding doors (CFC 604.2.7),
4. Auxiliary inflation systems in permanent membrane structures (CFC 604.2.9),
5. Indoor storage areas of Class I and unclassified detonable organic peroxides (CFC 604.2.12),
6. Emergency voice/alarm communication systems in covered mall buildings exceeding 50,000 feet,
7. Power & lighting for the fire command center in high rise buildings (CFC 403.10.2),
8. Smoke control systems (CFC 604.2.2),
9. Ventilation and automatic fire detection equipment for smoke-proof enclosures in high rise buildings (CFC 403.10.2),
10. Elevators for high-rise buildings (CBC 403.10.2).

Main Fuel Tank - A separate, main fuel tank for supplying fuel to the engine or a day tank (NFPA 110, 3.3.6.4).

Maximum Allowable Quantity (MAQ)- The maximum amount of a hazardous material allowed to be stored or used within a control area inside a building or an outdoor control area.

Optional Standby Systems –Those systems intended to supply power to public or private facilities or property where life safety does not depend on the performance of the system (i.e.: heating and refrigeration, data processing, etc.). Optional standby systems are intended to supply on-site generated power to selected loads either automatically or manually (CEC 702.2).

NOTE: If at any time there is a design and/or field change and either Level 1 or Level 2 loads have their secondary source of power supplied by the optional standby generator, this permit will be null and void and required to be resubmitted to the Plan Review Office.

Protected Above-ground Tank - An above-ground storage tank that is listed in accordance with UL 2085, Standard for Protected Above-ground Tanks for Flammable and Combustible Liquids, or an equivalent test procedure that consists of a primary tank provided with protection from physical damage and fire-resistive protection from exposure to a high-intensity liquid pool fire. The tank may provide protection elements as a unit or may be an assembly of components, or a combination thereof (NFPA 30, 3.3.41.1.1, CFC 3402.1).

Tank – A vessel containing more than 60 gallons (CFC 202).

SUBMITTAL REQUIREMENTS

1. GENERAL REQUIREMENTS:

- A. Provide a minimum of two sets of scaled plans directly to the Fire Department. A separate submittal shall be made directly to the Building Department for compliance of the electrical and mechanical codes in addition to the seismic anchoring of all equipment over 400 pounds.
- B. Submit a completed application found at www.santaclaraca.gov.
- C. Submit appropriate fees: \$850 per tank.
- D. Submit a completed “Submittal Checklist” found at the bottom of these guidelines. Every item must be addressed and included in the submittal package. If not applicable then write “N/A” next to the item. Any items left blank, will be immediately returned delaying further review.
- E. Submit a new or modified Hazardous Material Business Plan (HMBP). Forms can be found at www.unidocs.org.
- F. Identify the correct legal address of the project in the drawing title-block.
- G. Specify a clear scope of work on the cover sheet of the plan.

- H. State on the cover sheet what type of EPSS is being installed. State the Class, Type and Level of the EPSS in accordance with NFPA 110 and whether it is an emergency, legally required standby or optional standby generator. In addition, list in detail all of the loads supplied by the generator.
- I. State what type of tank is being installed on the cover sheet (i.e., double-wall steel or protected tank).
- J. Submit an electrical single line diagram showing all the connected loads and clearly identify them.
- K. Specify the legal address on the cover sheet of the plan.
- L. State on the coversheet whether the building is sprinklered. Any additions or modifications to a sprinkler system shall require a separate permit directly to the Fire Department.
- M. For tanks installed inside buildings: submit a Building Occupancy Classification Inventory Form found at the bottom of these guidelines if the tank(s) or day tank(s) is installed inside the building. Denote the location of all control areas on the plans for the entire building. Fire rated construction shall be shown for the control areas. There shall be a one-to-one correspondence between the control areas denoted on the plans to the ones denoted on the Building Occupancy Classification Inventory Form. The plans must state the total number of control areas for the entire building. If the MAQ is exceeded then the room/area shall be constructed as an H-2 or H-3 occupancy.
- N. Submit a Spill Prevention Control Countermeasure Plan (SPCC) if applicable. Businesses that store more than 1,320 gallons of petroleum above-ground must prepare a SPCC and file a Storage Statement with the California State Water Resources Board. SPCC Plan requirements are found in Title 40, Code of Federal Regulations, Part 112. Information regarding SPCC Plan preparation and submittal requirements is available on the internet at www.waterboards.ca.gov/cwphome/agt/index.html (H&SC §2527005(c)).
- O. Plans shall contain an equipment list that identifies all equipment to be installed. The equipment list shall specify the equipment, model number, location reference, and UL listing.
- P. Provide the manufacturer's specification sheets for the following items; highlight the style, type, model, etc., and the UL listing for each piece of equipment: generator, tanks, piping, pumps, overfill prevention system, overspill containment system, swiveling fill pipe adapters, monitoring systems, leak sensors, tank gauges, hoses, electrical equipment, controls valves, etc. **NOTE: All tanks and piping shall be secondarily contained. Highlight the specifications sheets where this requirement is met.**
- Q. Plans clearly show all new and existing equipment within project area and clearly distinguishes between the new and existing equipment.
- R. Contractor requirements specify that piping from convault tanks to generators must be designed by a Mechanical or Civil Engineer. A Mechanical or Civil Engineer is also required to sign off on the pad, tank bracing and piping. Self contained generator units do not require Engineer stamps or signatures (6747 exemption of Business and Professions code), meaning only a C-10 contractor can design and install this type of unit.

2. SITE AND/OR FLOOR PLAN REQUIREMENTS:

- A. The following information shall be drawn and noted on a scaled and dimensioned site plan:
- B. Where the generator or tank is installed inside a building, the building occupancy classification(s) shall be noted on plan's cover sheet and on the floor plans for the building rooms, and areas.
- C. Location of all above-ground storage tanks whether inside or outside of a building. Tanks shall be show on the site plan and distances dimensioned with respect to:
 - i. Property line that is **or** can be built upon, including the opposite side of a public way in accordance with Table 4.3.2.1.1 (a) and 4.3.2.1.1 (b) of NFPA 30 (CFC 3404.2.9.5.1.1). **NOTE: State on the plans how table values were determined (i.e., type of tank, protection, diameter used if applicable, etc.). In all cases, the minimum distance shall not be less than 5 feet,**
 - ii. Nearest side of any public way or from nearest important building on the same property in accordance with Table 4.3.2.1.1 (a) and 4.3.2.1.1 (b) of NFPA 30 (CFC 3404.2.9.5.1.1). **NOTE: State on the plans how table values were determined (i.e.,**

type of tank, protection, diameter used if applicable, exceptions taken, etc.). In all cases, the minimum distance shall not be less than 5 feet,

- iii. Building openings (doors, windows, etc),
- iv. Incompatible materials (in accordance with CFC 2703.9.8),
- v. Egress paths,
- vi. Adjacent flammable/combustible stable or unstable liquid tanks. The separation between tanks containing stable liquid shall be in accordance with Table 4.3.1.1.1 of NFPA 30. The separation between tanks containing unstable liquids shall not be less than one-half the sum of their diameters (CFC 3404.2.9.5.2). **NOTE: State on the plans how shell-to-shell spacing was established (i.e., diameter used, etc.) and whether tanks are located in a diked area,**
- vii. LP-gas containers. Separation distances shall be in accordance with CFC 3404.2.9.5.3. **NOTE: State on the plans whether the flammable/combustible liquid storage tanks are within a diked area and whether any exceptions were taken,**
- viii. Fire rated construction for the room, building, or area housing the tank and/or generator.
- ix. Dimensioned distances from normal vent pipe outlets to building openings and lot lines that can be built upon and termination height (see Section III below),
- x. Filling and withdrawal connections to be located not less than 5 feet from building openings or lot lines (see Section IV below),
- xi. Dimensioned clearances for maintenance. The EPS equipment shall be installed in a location that permits ready accessibility and a minimum of 36 inches from the skid rail's outermost point in the direction of access for inspection, repair, maintenance, cleaning, or replacement. This requirement shall not apply to units in outdoor housings (NPFA 110, 7.2.5),
- xii. Maximum holding capacity of each tank in gallons. NOTE: The maximum quantity of a combustible liquid storage system inside a building shall not exceed 660 gallons. Quantities exceeding 660 gallons inside a building shall be considered either an H-2 or H-3 occupancy and shall be constructed in accordance with *The California Building Code* (CFC Table 2703.1.1 (1) footnote "i"),
- xiii. Locations and classification(s) of portable fire extinguishers are clearly shown on the plans. See <http://santaclaraca.gov/pdf/collateral/3088-FireProtectionSystemsAndEquipment.pdf> for size and spacing requirements,
- xiv. Site plan identifies all public and private fire access roads and hydrants,
- xv. Vehicle impact protection. Guard post or other approved means shall be provided to protect tanks, pipe valves or fittings subject to vehicular damage and shall be constructed and shown in detail on the drawings as follows (CFC 3403.6.4):
 - a Constructed of steel not less than 4 inches in diameter and concrete filled
 - b Spaced not more than 4 feet between posts on center
 - c Set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter
 - d Set with the top of the posts not less than 3 feet above-ground
 - e Located not less than 3 feet from the protected object

3. TANK VENTING:

- A. Specify the location and termination height of the normal vent pipe. Normal vent pipe outlets for tanks storing Class I, II or III-A liquids shall be located such that the vapors are released at a safe point outside of buildings and not less than 12 feet above the adjacent ground level. Vapors shall be discharged upward or horizontally away from closely adjacent walls to assist in vapor dispersion. Normal vent outlets shall be located such that flammable vapors will not be trapped by eaves or other obstructions and shall be at least five feet from building openings or property lines of properties that can be built on (CFC 3404.2.7.3.3).
- B. Normal vent line flame arresters and venting devices shall be UL listed. Vent line flame arresters and venting devices shall be installed in accordance with their listings (CFC 3404.2.7.3.2). Highlight the UL listing on the manufacturer's specification sheets.

- C. Specify the slope of the vent pipe back to the tank on the plans. Vent pipes shall be installed such that they will drain toward the tank without sags or traps in which liquid can collect. Vent pipes shall be installed in such a manner as to not be subject to physical damage or vibration (CFC 3404.2.7.3.4).
- D. Specify the size of the normal vent pipe on the plans. Vents shall have a diameter equal to the size of the fill/withdrawal opening or at least 1.25 inches (nominal), whichever is greater, and be sized to prevent excessive backpressure on the above-ground tank(s). Vents shall be sized in accordance to NFPA 4.2.5.1.2. This is different for manifold piping systems.
- E. Emergency venting. Emergency venting shall be provided for each above-ground tank. Emergency venting shall be provided for each tank compartment, interstitial spaces, and any other enclosed spaces that may contain liquid due to a leak. Emergency vents for Class I, II and IIIA liquids shall not discharge within a building. Venting shall be installed and maintained in accordance with Section 4.2.5.2 of NFPA 30 (CFC 3404.2.7.4).
- F. Tank vent piping shall not be manifolded unless required for special purposes such as vapor recovery, vapor conservation or air pollution control (CFC 3404.2.7.3.5).

4. OTHER TANK OPENINGS:

- A. Connections to above-ground tanks through which liquid can normally flow shall be provided with internal or external valves located as close as possible to the shell of the tank. Connections below the liquid level through which liquid does not normally flow shall be equipped with a liquid tight closure. (CFC 3403.6.7, 3404.2.7.5.1).
- B. Filling and withdrawal connections. Above-ground tank(s) filling, withdrawal and vapor recovery connections for Class I, II, and III-A liquids, which are made and broken, shall be located outside of buildings and not less than 5 feet from building openings or lot lines. Such connections shall be closed and liquid tight when not in use and properly identified. (CFC 3404.2.7.5.2). **Show on plans.**
- C. Top-fill connections. For top-loaded tanks, metallic fill pipes shall terminate within 6 inches of the tank bottom to minimize static electricity (CFC 3404.2.7.5.5). **Show on plans.**

5. TANK CONTAINMENT, OVERFILL PREVENTION, MONITORING, AND CORROSION PROTECTION:

- A. The containment, overfill prevention, monitoring, and corrosion protection systems shall comply with the following (demonstration of compliance with each requirement is necessary during the plan review phase):
 - i. All tanks shall be provided with secondary containment (i.e., containment external to and separate from primary containment). Construction shall be substantial, capable of safely and securely containing a sudden release without discharge. Design criteria shall be performance oriented and constructed of physically and chemically compatible materials to resist degradation and provide structural and functional integrity for a period of time reasonably necessary to ensure detention, mitigation, and repair of the primary system (SCMFEC 2703.1.6).
 - ii. Secondary containment or equivalent protection from spills shall be provided for piping for liquid hazardous materials. Secondary containment includes, but is not limited to double walled piping (SCMFEC 2703.2.2.1).
 - iii. State on the plans the method of secondary containment and submit calculations. If secondary containment is not integral to the tank, it shall be designed as follows:
 - a **Indoor Design.** Secondary containment for indoor storage areas shall be designed to contain a spill from the largest vessel plus the design flow volume of fire protection water calculated to discharge from the fire-extinguishing system over the minimum required system design area or areas of the room or area in which the storage is located, whichever is smaller. The containment capacity shall be designed to contain the flow for a period of 20 minutes (CFC 2704.2.2.3). **State specifically the design density used for the sprinkler flow rate.**
 - b **Outdoor Design.** Secondary containment for outdoor storage areas shall be designed to contain a spill from the largest individual vessel. If the area is open to rainfall, secondary containment shall be designed to include the volume of a

24-hour rainfall as determined by a 25-year storm and provision shall be made to drain accumulation of ground water and rainwater (CFC 2704.2.2.4). **NOTE: If the outdoor area is under a sprinkler canopy, it should include the containment of the sprinkler discharge as outlined above for indoor design. State specifically the design density used for the sprinkler flow rate.**

- iv. Submit a monitoring plan, including the type and frequency of monitoring for approval. Flammable and combustible liquid storage and use system, including secondary containment shall be monitored on a regular or continual basis. Where monitoring devices are provided, they shall be connected to approved visual or audible alarms. Monitoring of secondary containment shall be in accordance with CFC 2704.2.2.5 (SCMFEC 2703.1.6).
- v. State on the plans what type of liquid-level limit control is provided. Atmospheric tanks having a capacity greater than 500 gallons, and which contain hazardous material liquids, shall be equipped with liquid-level limit controls or other approved means to prevent overfilling of the tank (CFC 2703.2.7).
- vi. Detail on plans the type of overfill prevention for each tank. Tanks shall not be filled above 95% capacity. The system shall include either of the following (CFC 3404.2.7.5.8):
 - a Provide an audible or visual alarm, or other approved means, to alert the person filling the tank when the tank reaches 90% capacity. The system shall automatically shut off the flow of fuel when the tank reaches 95% capacity, OR
 - b The system shall reduce the flow rate to not more than 15 gallons per minute so that the tank will not overflow for at least 30 minutes, and will automatically shut off the flow to the tank before any of the fittings on the top of the tank are exposed to product.
- vii. Where systems automatically fill flammable or combustible liquids, tanks shall be equipped with overfill protection, approved by the fire code official, which sends an alarm signal to a constantly attended location and immediately stops the filling of the tank. The alarm signal and automatic shutoff shall be tested on an annual basis and records of such testing shall be maintained on-site for a period of five (5) years (SCMFEC 3404.2.7.5.9). **Plans shall contain this detail where applicable.**
- viii. Above-ground tanks shall be fabricated from corrosion resistant materials, coated, or provided with corrosion protection (CFC 3404.2.7.9).

6. ADDITIONAL REQUIREMENTS FOR PROTECTED ABOVE-GROUND TANKS:

- A. Protected above-ground tanks shall be designed and noted on the plans per the following:
 - i. Normal and emergency venting for protected above-ground tanks shall be provided in accordance Section III above. However, the vent capacity reduction factor shall not be allowed (CFC 3404.2.9.6.2).
 - ii. Location of protected above-ground tanks operating at pressures not exceeding 2.5 psig shall be in accordance with Table 4.3.2.1. 1 (b) of NPFA 30, whereby the distances shall be reduced by one-half, but not less than 5 feet (CFC 3404.2.9.5.1.1, exception #3).
 - iii. Each protected above-ground tank fill pipe opening shall be equipped with a spill prevention container of:
 - a Minimum 5-gallon capacity; and
 - b "Listed" and "approved"; and
 - c Equipped with drain valve and secondarily contained pipe to allow spilled hazardous substances to be drained directly into the primary above-ground tank(s) through the fill pipe.
 - iv. If spill container does not have a drain valve, the owner or operator will have to provide another way to keep spill container empty (CFC 3404.2.9.6.8). Listing shall be highlighted on manufacturer's specification sheets.
 - v. A permanent sign shall be posted at the fill point for the protected tank documenting the fill procedures and the calibration chart. The procedures shall require the person doing the filling to determine the amount of product required to reach 90% capacity before commencing the fill operation (CFC 3404.2.9.6.6.1).

- vi. Approved anti-siphon devices shall be installed in each external pipe connected to the tank when the pipe extends below the level of the top of the tank. (CFC 3404.2.9.6.10). Listing shall be highlighted on manufacturer's specification sheets.
- vii. When any portion of the fill pipe extends below the top of the tank, a check valve shall be installed not more than 12 inches from the fill hose connection. (CFC 3404.2.9.6.7).

7. Requirements for Both Emergency and Legally Required Standby Power Systems :

- A. Generators shall be installed in accordance with Article 445 of the *California Electrical Code*, the requirements of Section 5.6 of NFPA 110, and shall be listed to UL 2200.
- B. The following requirements shall be noted on the plans for the installation of either emergency or legally required standby power systems (specific requirements for Emergency/Level 1 Systems or Standby Power/Level 2 Systems are noted below this section):
 - i. Plans and calculations show that there is an on-site fuel supply provided with an on-premise fuel supply sufficient for not less than 2 hours' full-demand operation of the system (CEC 700.12 (B)(2) & 701.11(B)(2)). NOTE: For high-rise buildings, see Section XI below. Highlight on the generator data sheet the fuel consumption rate.
 - ii. Plans show that when the EPS is running at rated load, the ventilation air flow shall limit the maximum air temperature in the EPS room to the maximum ambient air temperature required by the EPS manufacturer (which is highlighted on the manufacturer's specification sheet as well) (NFPA 110, 7.7.1).
 - iii. Plans show the ventilation air supply shall be from outdoors or from a source outside the building by an exterior wall opening, or from a source outside the building by a 2-hour rated air transfer system (NFPA 110, 7.7.3).
 - iv. Plans show emergency path lighting. Level 1 or Level 2 EPS equipment location(s) shall be provide with battery-powered emergency lighting. This requirement shall not apply to units located outdoors in enclosures that do not include walk-in access. The emergency lighting charging system and the normal service room lighting shall be supplied from the load side of the transfer switch. The intensity of illumination in the separate building or room housing the EPS equipment for Level 1 shall be 3 foot-candles (32.3 lux)(NFPA 110, 7.3.1).
 - v. Show on the plans, a low-fuel sensing switch provided for the main fuel supply tank(s) to indicate when less than the minimum fuel necessary for full load running as required by the specified class remains in the main fuel tank (NFPA 110, 5.5.2).
 - vi. Show on the plans that the main fuel tank has a minimum capacity of at least 133 percent of either the low-fuel sensor quantity specified in 5.5.2 of NFPA 110 or for the class specified in Table 4.1. (a) (NPFA 110, 5.5.3).
 - vii. Plans show a remote, common audible alarm shall be provided as specified in NFPA 110, 5.6.5.2(4) that is powered by the storage battery and located outside of the EPS service room at a work site observable by personnel (NPFA 110, 5.6.6).

8. SPECIFIC REQUIREMENTS FOR EMERGENCY/LEVEL 1 SYSTEMS:

- A. Level 1 emergency systems shall be designed in accordance with the following and detailed on the plans:
 - i. Plans contain the following note (verbatim): "In the event of failure of the normal power supply, emergency power shall be available within the time required for the application but not to exceed 10 seconds." (CEC 700.12).
 - ii. Plans show where the generator set (EPS) is located inside a building. It shall be installed in a separate room for Level 1 installations (note if the EPS is an integral diesel fuel generator, then this is required for any amount of fuel, regardless of Maximum Allowable Quantities). EPSS equipment shall be permitted to be installed in this room. The room shall be constructed with 2-hour fire barriers or horizontal assemblies in accordance with the *California Building Code*, or be located in an adequate enclosure located outside the building, capable of resisting the entrance of rain at a maximum wind velocity required by local building codes. Plans shall clearly denote the fire rated construction. (CFC 604.2.15.1, NFPA 110, 7.2). No other equipment, including

architectural appurtenances, except those that serve this space, shall be permitted in this room. Level 1 EPSS equipment shall not be installed in the same room with the normal service equipment, where the service equipment is rated over 150 volts to ground and equal to or greater than 1000 amperes (NFPA 110, 7.2).

- iii. The EPS shall be permitted to supply emergency, legally required standby, and optional standby system loads where the source has adequate capacity, or where automatic selective load pickup and load shedding is provided as needed to ensure adequate power to 1) the emergency circuits/Level 1 loads, 2) the legally required standby circuits/Level 2 loads, and 3) the optional standby circuits, in that order of priority. The EPS power source shall be permitted to be used for peak load shaving, provided these conditions are met (CEC 700.5 (B), NFPA 110, 7.1.5).
- iv. Plans state the following "A sign shall be placed at the on the main electrical service equipment, indicating type and location of on-site emergency power sources" (CEC 700.8).
- v. Plans show where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set day tank, this pump shall be connected to the emergency power system (CEC 700.12 (B)(2)).
- vi. Plans show that discharge air shall be directed outside the building by an exterior wall opening or to an exterior opening by a 2-hour rated air transfer system (NFPA 110, 7.7.2.2). NOTE: Fire dampers, shutters, or other self-closing devices shall not be permitted in ventilation openings or ductwork for supply or return/discharge air to EPS equipment (NFPA 110, 7.7.5).
- vii. Calculations show the emergency system has adequate capacity and rating for all loads (emergency loads) to be operated simultaneously (CEC 700.5 (A)).
- viii. Plans show automatic transfer equipment and labeling identifying "Emergency Use" (CEC 700.6).

9. SPECIFIC REQUIREMENTS FOR LEGALLY REQUIRED STANDBY/LEVEL 2 SYSTEMS:

- A. The legally required standby alternate power source shall be permitted to supply both legally required standby and optional standby system loads.
- B. State on the plans: "In the event of failure of the normal power supply, the legally required standby power system will be available within the time required for the application but not to exceed 60 seconds"(CEC 701.11).
- C. State on the plans (verbatim): "A sign shall be placed at the on the main electrical service equipment, indicating type and location of on-site legally required standby sources." (CEC 701.8).
- D. Plans show automatic transfer equipment and labeling identifying "Standby Use" (CEC 701.9 (A)).

10. ADDITIONAL REQUIREMENTS FOR GENERATORS INSTALLED IN HIGH-RISE BUILDINGS:

- A. Generators used as a secondary power supply for high-rise buildings shall be designed and detailed on the plans in accordance with the following:
 - i. State on the plans (verbatim): "Loads that are classified as emergency systems (see definition above for Level 1 Systems) shall operate within 10 seconds (Type 10, NFPA 110) of the normal power supply and shall be capable of being transferred to the emergency power supply." (CEC 700.12).
 - ii. Power and lighting facilities for the fire command center and elevators specified in Sections 403.8 and 403.9 of the California Building Code, as applicable, shall be transferable to the standby source. Standby power shall be provided for at least one elevator to serve all floors and be transferable to any elevator (CFC 604.2.15.2).
 - iii. Plans show emergency and standby power status indicators in the fire command center, per CFC 509.1. Status indicators shall include but not be limited to: generator supervision devices, manual start and transfer features.
 - iv. For internal combustion engines used as prime movers, plans and calculations show the following:

- a An on-site fuel supply shall be provided with an on-premise fuel supply sufficient for not less than **6 hours full-demand** (Class 6, NFPA 110) operation of the system (CFC 604.2.15.1.1). **NOTE: Natural gas is not an acceptable fuel supply.**
- b Where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set day tank, this pump shall be connected to the emergency power system (CEC 700.12 (B)(2)).
- c Where the emergency power supply is a generator set inside a building, the system shall be located in a separate room enclosed with 2-hour fire barriers or horizontal assemblies constructed in accordance with the *California Building Code*. System supervision with manual start and transfer features shall be provided at the fire command center (CFC 604.2.15.1).

11. OPTIONAL STANDBY GENERATORS:

- A. If an optional standby generator (non-required generator) is to be installed, then only the tank requirements listed in the apply.
- B. **NOTE:** If at any time there is a design and/or field change and either Level 1 or Level 2 loads have their secondary source of power supplied by the optional standby generator, this permit will be null and void and required to be resubmitted to the Plan Review Office.

ACCEPTANCE TESTING FOR EMERGENCY GENERATORS AND LEGALLY REQUIRED STANDBY POWER SYSTEMS

1. Testing of tanks shall be witnessed by the Santa Clara Fire Department. Acceptance tests shall be performed by an experienced third party in accordance with NFPA 110. 7.13. Documentation shall be provided to the AHJ outlining the acceptance tests and conformity to all the requirements of section 7.13 to include, but not limited to the following:
2. With the prime mover in a "cold start" condition and the emergency load at standard operating level, a primary power failure shall be initiated by opening all switches or breakers supplying the primary power to the building or facility.
3. The test load shall be all loads that are served by the EPSS.
4. The time delay on start shall be observed and recorded.
5. The cranking time until the prime mover starts and runs shall be observed and recorded.
6. The time taken to reach operating speed shall be observed and recorded.
7. The voltage and frequency overshoot shall be recorded.
8. The time taken to achieve a steady-state condition with all switches transferred to the emergency position shall be observed and recorded.
9. The voltage, frequency, and amperes shall be recorded.
10. The prime mover oil pressure and water temperature shall be recorded, where applicable.
11. The battery charge rate shall be recorded at 5-minute intervals for the first 15 minutes, and at 15-minute intervals thereafter.
12. The load test with building load, or other loads that simulate the intended load as specified in Section 5.4, shall be continued for the minimum time required by Table 4.1(a) for the class, or 2 hours maximum, and load changes and the resultant effect on voltage and frequency shall be observed and recorded.
13. When primary power is returned to the building or facility, the time delay on retransfer to primary for each switch with a minimum setting of 5 minutes shall be recorded.
14. The time delay on the prime mover cool-down period and shutdown shall be recorded.
15. After the above tests are performed, the prime mover shall be allowed to cool for 5 minutes.
16. A load shall be applied for a 2-hour, full-load test. The building load shall be permitted to serve as part or all of the load, supplemented by a load bank of sufficient size to provide a load equal to 100 percent of the nameplate kW rating of the EPS, less applicable derating factors for site conditions.

17. At least two sets of instruction manuals for all major components of the EPSS shall be supplied by the manufacturer(s) of the EPSS and shall contain the following:
- A. A detailed explanation of the operation of the system,
 - B. Instructions for routine maintenance,
 - C. Detailed instructions for repair of the EPS and other major components
 - D. An illustrated parts list and part numbers
 - E. Illustrated and schematic drawings of electrical wiring systems, including operating and safety devices, control panels, instrumentation, and annunciators.
18. **NOTE:** For Level 1 systems, instruction manuals shall be kept in a secure, convenient location, one set near the equipment, and the other set in a separate location.

SCHEDULING INSPECTIONS

- A. Inspection appointments can only be made by the installing contractor.
- B. It is the responsibility of the installing contractor or a representative to be on the job site during the inspection with a set of approved plans. Failure to do so will result in the cancellation of the inspection and an assessment of a re-inspection fee of \$150.00 will be assessed.
- C. Call (408) 615-4970 at least one business day prior to the desired date of the inspection. Inspections are assigned on a first come first served basis. The inspection request line is open Monday through Friday between 8:00 a.m. and 5:00 p.m.

SMART PERMIT INFORMATION SYSTEM

The City of Santa Clara offers you the opportunity to check the status of your fire permits on-line. To access the Smart Permit Information System please log onto the system at: http://santaclaraca.gov/community/smt_permit_information.html.

You can search the system using your Case Number (Permit number: FIR2008-00001), Project Name, Applicant Name or the address of the project.

SANTA CLARA FIRE DEPARTMENT - NOTES

Place all of the following notes, verbatim, on the plans:

1. A fire department inspection is required before the fuel can be placed into the tank and the generator is used. Call (408) 615-4970 to schedule inspection.
2. An experienced 3rd party shall perform an on-site acceptance test in accordance with section 7.13 of NFPA 110. Documentation shall be provided to SCFD outlining the acceptance tests and conformity to the requirements of section 7.13 (this shall be put on plans for emergency or legally required standby power systems only (i.e., not for optional systems).
3. Testing of tanks shall be witnessed and approved by the fire department. Acceptance testing of the emergency or legally required standby power system shall be performed by an experienced third party.
4. After installation, and prior to placing in service, pneumatically test primary horizontal tanks at 3-5 psig for 60 minutes. The interstitial space of horizontal tanks shall either be pneumatically tested at 3-5 psig for 60 minutes or by vacuum at 5.3 in. Hg (17.9kPa). Vertical primary tanks shall be pneumatically tested at 1.5 - 2.5 psig for 60 minutes or perform a vacuum test for 30 minutes. The interstitial space of vertical tanks shall either be pneumatically tested at 1.5 - 2.5 psig for 60 minutes or by vacuum at 5.3 in. Hg (17.9kPa). (NFPA 30, 2.4.2.3 and 2.4.2.4)
5. Label above-ground tank on both sides and/or tank enclosure with "XX GALLONS DIESEL FUEL - COMBUSTIBLE LIQUID - NO SMOKING".
6. Label all doors, areas, piping, tubing, tanks, exhaust ducts, containers, etc., in accordance with SCFD-Fire and Life safety Standard #2, Chemical Identification. Additional labeling/signage may be required based upon field inspection. (2007 SCMFECE).
7. Install hazard identification signs as specified in NFPA 704 and SCFD-Fire and Life Safety Standard #2, Chemical Identification at the entrances to locations where hazardous materials are stored, and on stationary above-ground tanks. (CFC 2703.5)

SPECIFIC REQUIREMENTS FOR LEGALLY REQUIRED STANDBY/LEVEL 2 SYSTEMS:

12. In the event of failure of the normal power supply, the legally required standby power system will be available within the time required for the application but not to exceed 60 seconds. (CEC 701.11).
13. A sign shall be placed at the on the main electrical service equipment, indicating type and location of on-site legally required standby sources. (CEC 701.8).

ADDITIONAL REQUIREMENTS FOR GENERATORS INSTALLED IN HIGH-RISE BUILDINGS:

14. Loads that are classified as emergency systems (see definition above for Level 1 Systems) shall operate within 10 seconds (Type 10, NFPA 110) of the normal power supply and shall be capable of being transferred to the emergency power supply. (CEC 700.12).

INSTALLATION OF ABOVEGROUND DIESEL FUEL TANKS FOR EMERGENCY & STANDBY POWER SYSTEMS FIRE DEPARTMENT SUBMITTAL CHECKLIST

Submit a minimum of two (2) sets of drawings and supporting documentation directly to the fire department. The submittal package shall include all of the following information along with this completed checklist. Each item shall be addressed and noted in the first column, **SUBMITTED**, as follows:

✓ To indicate information is included in submittal package (i.e., calculations, specifications, etc.)

DWG # To indicate the sheet number where information is found on the drawing as required from checklist

N/A To indicate the item is not applicable to the project

Permits and/or approvals shall be obtained from the follow departments/agencies: 1) City of Santa Clara Planning Department for outdoor installations, 2) City of Santa Clara Building Department, 3) Bay Area Air Quality Management, and 4) Silicon Valley Power.

separate submittal shall be made directly to the Building Department for compliance of the electrical and mechanical codes in addition to the seismic bracing of all equipment over 400 pounds. For further information describing these items, refer to the **Guidelines for the Installation of Aboveground Diesel Fuel Tanks for Emergency and Standby Power Systems** found at www.santa-clar.....

SUBMITTED (✓, DWG #, or N/A)	MISSING OR INCOMPLETE	
		General Requirements
		1. A new or modified Hazardous Materials Business Plan (HMBP) is submitted with the package. Forms can be found at www.unidocs.org .
		2. Plans are scaled and dimensioned.
		3. Legal address of project is correctly identified in title-block.
		4. Scope of work is clearly identified on plans coversheet.
		5. Type of tank is specified on plans coversheet (i.e., double-wall steel or protected).
		6. Building is identified as sprinkled or unsprinklered on the plans coversheet.
		7. Plans show all new & existing equipment within project area and clearly distinguish between new & existing equipment.
		8. All existing equipment in the area where tank is installed is shown & clearly identified as existing.
		9. Class, type, and level of EPSS is noted on plans coversheet and whether it is an emergency, legally required standby or optional standby generator (refer to guidelines referenced above for definitions).
		10. A detailed list of loads supplied by the generator is noted on plans coversheet (for emergency and/or legally required standby power systems only).
		11. An electrical single line diagram has been submitted showing all connected loads (for emergency and/or legally required standby power systems only).
		12. A <i>Building for Occupancy Classification Inventory Form</i> has been submitted for the tank(s) installed inside a building. One form shall be completed per control area with the proposed occupancy classification noted on the form(s). See attachment.
		13. A plan showing all control areas for the building & fire rated construction (walls, floor/ceiling assemblies, etc.) is included for tanks installed inside a building.
		14. A Spill Prevention Control and Countermeasure (SPCC) Plan has been submitted

			(for businesses that store more than 1320 gallons of petroleum aboveground). Information can be found at www.waterboards.ca.gov/cwphome/agt/index.html
		15	An equipment list has been included as part of the drawing set.
		16	State on the plans: "A fire department rough and final inspection is required".
		17	State on the plans: "Label aboveground tank on both sides and/or tank enclosure with XX GALLONS DIESEL FUEL - COMBUSTIBLE LIQUID - NO SMOKING. "
		18	Plans state: "Label all doors, areas, piping, tubing, tanks, exhaust ducts, containers, etc., in accordance with Santa Clara Fire Department guidelines. Additional labeling/signage may be required based upon field inspection (2007 SCMFEC)". Labeling standards can be found at
		19	Plans state: "Install hazard identification signs as specified in NFPA 704 or UFC 79-3 at the entrances to locations where hazardous materials are stored, and on stationary aboveground tanks".
		20	Plans state: "After installation, and prior to placing in service, pneumatically test primary horizontal tanks at 3-5 psig for 60 minutes. The interstitial space of horizontal tanks shall either be pneumatically tested at 3-5 psig for 60 minutes or by vacuum at 5.3 in. Hg (17.9kPa). Vertical primary tanks shall be pneumatically tested at 1.5- 2.5 psig for 60 minutes or perform a vacuum test for 30 minutes. The interstitial space of vertical tanks shall either be pneumatically tested at 1.5- 2.5 psig for 60 minutes or by vacuum at 5.3 in. Hg (17.9kPa)." (NFPA 30, 2.4.2.3 and 2.4.2.4).
		21	If the generator is an emergency or legally required system, plans shall state the following: "An on-site acceptance test in accordance with section 7.13 of NFPA 110 shall be performed by an experienced third party. Documentation shall be provided to the AHJ outlining the acceptance tests and conformity to the requirements of section 7.13."
		Site and/or Floor Plan Requirements	
		22	Where located the generator/tank is located inside a building, the building occupancy classification(s) is noted on plans coversheet & on the floor plans for the building, rooms, and areas.
		23	Site plan identifies all public and private fire access roads and hydrants.
		24	Plans show locations and classification(s) of portable fire extinguishers are clearly shown on the plans. See http://santaclaraca.gov/pdf/collateral/3088-FireProtectionSystemsAndEquipment.pdf for size and spacing requirements.
		25	Maximum holding capacity for each tank is shown in gallons on the plans. NOTE: Inside a building, the maximum quantity of a combustible liquid storage system shall not exceed 660 gallons. (CFC Table 2703.1.1 (1) footnote "i").
		26	Vehicle impact protection is detailed and shown on plans for outdoor tank and piping installations in accordance with CFC 3403.6.4.
		27	Tank(s) are shown with distances dimensioned in accordance with NFPA 30 Table 4.3.2.1.1 (a) & (b)
		28	Tank(s) are shown with distances dimensioned to incompatible materials & materials are identified (CFC 2703.9.8).
		29	Tank(s) are shown with distances dimensioned to building openings, and egress paths.
		30	Tank(s) are shown with distances dimensioned to adjacent flammable/combustible stable or unstable liquid tanks in accordance with Table 4.3.2.2.1 or 3404.2.9.5.2 of the CFC.
		31	Tank(s) are shown with distance dimensioned to adjacent LP-gas containers (CFC 3404.2.9.5.3).

		32	A dimensioned clearance of 36 inches for EPS equipment is shown for maintenance purposes.
		Venting System Requirements	
		33	Plans show the location and termination height of the normal vent pipe (CFC 3404.2.7.3.3).
		34	Submit manufacturer's specifications with the UL listings highlight for normal vent line flame arresters and venting devices (CFC 3404.2.7.3.2).
		35	Plans specify the size of the normal vent & the slope of the vent pipe back to the tank (CFC 3404.2.7.3.4).
		36	Plans show emergency venting for each compartment, interstitial spaces, and any other enclosed spaces that may contain liquid due to a leak. Emergency vents shall not discharge within a building. (CFC 3404.2.7.4).
		Tank Openings Other Than Vents	
		37	Plans show filling and withdrawal connections are located outside of buildings & not less than 5 feet from building openings or lot lines (CFC 3404.2.7.5.2).
		38	Plans show for top-loaded tanks, metallic fill pipes shall terminate within 6 inches of tank bottom (CFC 3404.2.7.5.5).
		Tank Containment, Overfill Prevention, Monitoring, and Corrosion Protection	
		39	Plans state the type of secondary containment provided for both tank and piping systems. (SCMFEC 2703.1.6 & SCMFEC 2703.2.2.1).
		40	Where secondary containment is not integral to the tank, calculations of the secondary containment shall be included in the submittal package (CFC 2704.2.2.3 & CFC 2704.2.2.4).
		41	Plans show an approved monitoring method. An approved monitoring method shall be provided to detect hazardous materials in the secondary containment system. The monitoring method is allowed to be visual inspection of the primary or secondary containment, or other approved means. Where secondary containment is subject to the intrusion of water, a monitoring method for detecting water shall be provided. Where monitoring devices are provided, they shall be connected to approved visual or audible alarms. (CFC 2704.2.2.5 & SCMFEC 2703.1.6).
		42	Plans show an overfill prevention system for each tank fill pipe opening as outlined below: Tanks shall not be filled in excess of 95% of their capacity. The system shall include either of the following (SCMFEC 3404.2.7.5.8, CFC 3404.2.9.6.6): a) Provide an audible or visual alarm, or other approved means, to alert the person filling the tank when the tank reaches 90% capacity. The system shall automatically shut off the flow of fuel when the tank reaches 95% capacity, OR b) The system shall reduce the flow rate to not more than 15 gallons per minute so that the tank will not overflow for at least 30 minutes and will automatically shut off the flow to the tank before any of the fittings on the top of the tank are exposed to product because of overfilling.
		43	Plans show that systems that automatically fill flammable or combustible liquid tanks shall be equipped with overfill protection, approved by the fire code official, that send an alarm signal to a constantly attended location and immediately stops the filling of the tank. The alarm signal and automatic shutoff shall be tested on an annual basis and records of such testing shall be maintained on-site for a period of five (5) years (SCMFEC 3404.2.7.5.9).
		Additional Requirements for Protected Above-ground Tanks	

		44	Plans show each tank fill pipe opening is equipped with a listed & approved spill prevention container and listing on manufacturer's specifications is highlighted (CFC 3404.2.9.6.8).
		45	Plans state that a permanent sign shall be posted at the fill point documenting the fill procedures (CFC 3404.2.9.6.6.1).
		46	Plans show an approved anti-siphon device is installed in each external pipe connected to the tank when the pipe extends below the level of the top of the tank. Listing is highlighted on cut-sheets (CFC 3404.2.9.6.10).
		47	Plans show a check valve installed when any portion of the fill pipe extends below the top of tank (CFC 3404.2.9.6.7).
		Requirements for Both Emergency Level 1 & Standby Level 2 Power Systems	
		48	Plans and calculations show that there is an on-site fuel supply provided with an on-premise fuel supply sufficient for not less than 2 hours' full -demand operation of the system.(CEC 700.12 (B)(2) & 701.11(B)(2)). NOTE: Fuel requirement different for high rises (see section below). Highlight on the generator data sheet the fuel consumption rate.
		49	Plans show that when the EPS is running at rated load, the ventilation air flow shall limit the maximum air temperature in the EPS room to the maximum ambient air temperature required by the EPS manufacturer (which is highlighted on the manufacturer's specification sheet as well) (NFPA 110, 7.7.1).
		50	Plans show the ventilation air <u>supply</u> shall be from outdoors or from a source outside the building by an exterior wall opening or from a source outside the building by a 2-hour rated air transfer system (NFPA 110, 7.7.3).
		51	Plans show battery-powered emergency lighting for the area housing the EPS (generator) equipment with the proper foot-candles (NFPA 110, 7.3.1). This requirement shall not apply to units located outdoors in enclosures that do not include walk-in access. NOTE: A minimum of 3 ft-candles is required for Level 1 systems.
		52	Plans show a low-fuel sensing switch provided for the main fuel supply tank(s) to indicate when less than the minimum fuel necessary for full load running as required by the specified class remains in the main fuel tank (NFPA 110, 5.5.2).
		53	Plans show the main fuel tank having a minimum capacity of at least 133 percent of either the low-fuel sensor quantity specified in 5.5.2 or for the class specified in Table 4.1 (a) (NFPA110, 5.5.3).
		54	Plans show a remote common audible alarm, which is located outside of the EPS (generator) room at a work site observable by personnel (NPFA 110, 5.6.6).
		Specific Requirements for Emergency (Level 1) Systems	
		55	Plans contain the following note: "In the event of failure of the normal power supply, emergency power shall be available within the time required for the application but not to exceed 10 seconds" (CEC 700.12).
		56	Plans show where the generator set is inside a building; it shall be located in a separate room enclosed with 2-hour fire barriers or horizontal assemblies constructed in accordance with the <i>California Building Code</i> . Plans shall clearly denote the fire rated construction. (CFC 604.2.15.1, NFPA 110, 7.2).
		57	Plans show where power is needed for the operation of the fuel transfer pumps to deliver fuel to a generator set day tank, this pump shall be connected to the emergency power system (CEC 700.12 (B)(2)).
		58	Plans show that discharge air shall be directed outside the building by an exterior wall opening or to an exterior opening by a 2-hour rated air transfer system (NFPA 110, 7.7.2.2). NOTE: Fire dampers, shutters, or other self-closing devices shall not be permitted in ventilation openings or ductwork for supply or return/discharge air to EPS equipment (NPFA 110, 7.7.5).
		59	Calculations show the emergency system has adequate capacity & rating for all loads (emergency loads) to be operated simultaneously (CEC 700.5 (A)).

		60	Plans show the EPS is installed in a separate room having a minimum 2-hour fire rating (NFPA 110, 7.2).
		61	Plans state that a sign shall be placed at the on the main electrical service equipment, indicating type and location of on-site emergency power sources (CEC 700.8).
		62	Plans show automatic transfer equipment & labeling identifying "Emergency Use" (CEC 700.6).
		63	State on the plans: "In the event of failure of the normal power supply, the legally required standby power system will be available within the time required for the application but not to exceed 60 seconds"(CEC 701.11).
		64	Plans state that a sign shall be placed at the service entrance equipment, indication type and location of on-site legally standby power sources (CEC 701.9).
		65	Plans show automatic transfer equipment & labeling identifying "Standby Use". (CEC 701.9 (A)).
		66	Plans contain the following note: "Loads that are classified as emergency systems shall operate within 10 seconds of the normal power supply and shall be capable of being transferred to the emergency power supply."
		67	Plans show emergency and standby power status indicators in the fire command center per CFC 509.1.
		68	Plans and calculations show that an on-site fuel supply is provided with an on-premise fuel supply sufficient for not less than <u>6 hour full-demand</u> operation of the system (CFC 604.2.15.1.1, as amended by the SFM). Highlight on the generator data sheet the fuel consumption rate.
		Optional Standby Power Systems	
		69	Plans clearly denote that the generator supplies loads that are <u>only</u> optional standby loads. If so, then only the requirements of the previous sections apply. If at any time there is a design and/or field change and either Level 1 or Level 2 loads have their secondary source of power supplied by the optional standby generator, this permit will be null and void and required to be resubmitted to the Plan Review Office.
		70	Testing of tanks shall be witnessed by the Santa Clara Fire Department. An on-site acceptance test for the EPSS shall be in accordance with section 7.13 of NFPA 110 and shall be performed by an experienced third party. Documentation shall be provided to the AHJ outlining the acceptance tests and conformity to the requirements of section 7.13. NOTE: For Level 1 systems, instruction manuals shall be kept in a secure, convenient location, one set near the equipment, and the other set in a separate location.